

Section I. Preparing for a Shoreline Survey

Shoreline Surveys are more effective if your group has thought about how the survey will serve your purposes in working to protect your river. Volunteers feel more empowered if they know how the data will be used and that their work will help the river.

A. Setting Goals:

As your group plans a Shoreline Survey, you all need to think about

- 1) why you are doing a Shoreline Survey
- 2) what you plan to achieve
- 3) what you will do with the data you collect.

Why? Clearly specify and WRITE DOWN the reasons for conducting a Shoreline Survey. For example, your group may want to:

- build an informed constituency for stream protection
- collect baseline data to promote better local and state planning for stream protection & restoration
- determine the impact of point and non-point pollution
- identify habitat
- discover potential access points and trails
- identify lands suitable for protection
- determine the impact of new development along the river
- assess the effectiveness of specific clean up efforts
- promote understanding of watershed issues
- identify wetlands suitable for restoration.

What do you plan to achieve? Clearly specify and WRITE DOWN the outcomes that the program is designed to achieve. For example, you may want to:

- educate public officials & local residents & businesses
- restore the quality of the stream for specific recreational and natural purposes
- stop inappropriate development and work with town officials to ensure that proper siting and buffering occurs with new developments
- protect fish & wildlife using the stream
- identify effective cleanup strategies
- assess water quality of stream areas used for water supply, recreation, or by sensitive aquatic species
- locate good fisheries habitat & stream restoration sites.

What are you going to do with the data you collect? Consider some specific actions. For example:

- create a report on the status of the river, share it with your members and town officials and publish a summary of it in the newspaper
- design a water quality monitoring program
- alert environmental officials to potential pollution violations
- submit data for inclusion in a statewide stream monitoring database (to be developed)
- protect and restore aquatic habitat
- share information with DEP and other state and regional agencies to enhance their planning and protection strategies for your watershed and stream.

B. Recruiting Volunteers and Sharing the Work

The Shoreline Surveys provide people with an opportunity to be out on the river or river banks, to learn about the river, and to contribute to its protection. Some groups advertise a meeting in the newspaper or in their newsletters; others call prospective volunteers on the phone. You may be surprised at the number and range of volunteers you hear from; people volunteer to do Shoreline Surveys who would never go to an indoor meeting. Regardless of your recruitment methods, be sure that town residents and riverfront landowners feel included.

You do not need vast numbers of volunteers. Estimate the number of volunteers needed by dividing your river frontage into reasonable segments (a half a mile, a fourth of a mile--depending upon the river). Each segment requires at least two people. To determine reasonable lengths of each segment, consider how difficult the river is to walk or canoe and how many pipes or other factors need to be observed. In addition to surveyors, you will need people to coordinate the Shoreline Survey.

Some groups have created a steering committee to run the Shoreline Survey. This committee can be comprised of a few key people who are doers. Other groups have organized by dividing the river into large stretches and appointing team leaders for each stretch to divide up the work, gather maps, inform landowners and recruit volunteers for their sections. Volunteers can be asked to bring friends. Invite members of town boards, the League of Women Voters, garden clubs, anglers and sportsmen, canoeists, business clubs, local businesses, high school groups and land trusts.

We recommend that each task have two people (or more) to share the workload. Some of these tasks may need a committee of several people. By involving several people, each task is more fun and is less likely to result in volunteer burnout. Tasks for a Shoreline Survey generally include:

- **Overall Coordination:** Oversee the project from beginning to end and to make sure that all the steps are taken.
- **Volunteer Coordination:** Invite people to participate in the survey and make sure they know when to meet and what to do.
- **Public Relations Coordination:** Write and distribute letters to landowners, write press releases and articles in your newsletter, invite town officials, cable TV, radio, and other organizations to training session, etc., and prepare follow up publicity.
- **Materials Coordination:** Create baseline maps, see that handouts and maps are photocopied, and organize canoes if necessary.
- **Follow up Coordination:** Work to get a summary report written, review the summaries and data sheets, make a base map to accompany the report and support action planning and steps to action including working with town boards.

C. Creating the Maps

You will want to make a base map for the length of river, which will be used for your training workshop, for follow up sessions and for public displays. You will also want to divide up the base map into segments that can be surveyed in the field by pairs of volunteers. The lengths depend upon access to the site, complications of the shorelines (heavily developed ones will take longer), and stamina of the volunteers. As you create the segments consider whether you will be using canoes or walking the shore.

We suggest that each reach of shoreline be a section with fairly homogenous characteristics of about 1/2 mile. Less or more is entirely appropriate. It will be easier for future stream teams to locate your sites if the section is bounded by clear landmarks (roads, bridges and tributaries). Once you divide up the baseline map into segments, make two photocopies of each segment. One copy for volunteers to use in the field and one copy to be photocopied for later surveys. People appreciate having a small map of the entire segment on the back of their segment map. The segment map needs to be large enough to locate pipes, erosion, access points, etc.

There are several types of maps you can use. Whichever map you choose, it should be "user friendly." People must be able to use them to know exactly where they are. Make a trial visit to the river with the map. Can you find your location with ease? We have included a description of some of the more easily available maps.

Topographic maps: USGS Quadrangle (quad) maps

To obtain information about your Shoreline Survey area, find a USGS topographical (topo) map of your area. The "topo" maps are excellent in that they show buildings, elevations, waterways and roads. We recommend a 7 1/2 minute quad map (a 1:24,000 map where 11 inches = 4 miles). They are available at local sporting goods stores. For some rivers and brooks, you will need to purchase and tape together several topo maps in order to show the entire stretch of your river that you plan to survey.

Although the maps are detailed and show many important features, their scale is too small for volunteers to use in the field. By enlarging (200% to a scale of 1" = 1000 feet) on a copy machine, you will have a map that is easier to read and manage. When you photocopy and enlarge the map, be sure to enlarge the scale bar by the same percentage so that the scale bar is accurate. (See *Figure 1A* for an example of a 200% enlarged topo map.) The enlarged map is good to use as your base map. Take a copy of the map, divide it into river segment and provide a river segment map for each team. [Note: Some groups use a Mylar sheet over the base map to show findings from the Shoreline Survey. By using Mylar, you will protect your base map and still be able to show what surveyors found.]

Town and City Maps

Groups have also used zoning maps and assessors maps successfully. For a fee, town halls will often copy maps for you or allow you to make copies. (See *Figure 1B* for an example of an Assessors' map.) These are detailed enough to allow people to mark sites on the map. The Hop Brook Protection Association worked with town officials as they planned their Shoreline Survey. Realizing that the Survey benefited the town as well as the brook, the Conservation Commission allowed the group to photocopy the appropriate assessor maps. Other towns have also donated copies of the map or photocopying privileges. Again tape the maps together to make a large base map. Copy this map and cut it into segments for each team.

Sketch maps

Topo maps or city maps can also be used as a template to trace in making an accurate sketch map of your stream segment. A marked copy of your sketch map and data sheets will make follow up easier. They can be used to identify exact locations in the field and for entering your data into a data management system. Sketch maps of each section on an 8.5 X 11 inch pieces of paper. This map will be used in the field to identify locations of possible problem areas, resource areas, and photographed areas along the stream or shore. Be generous with space; fill up most of the page. Add several landmarks to your map. (See *Figure 1C* for an outstanding example of a sketch map showing sites in a busy urban section.) Use several of the same landmarks as are shown on a USGS map. Add a North Arrow and a scale bar to indicate the scale. You can either print comments or use numbers with a corresponding key to identify sites. Save one copy of each sketch map for photocopying for later surveys.

(Text continues on page 13)

Figure 1A. ENLARGED U.S.G.S. TOPOGRAPHIC MAP. Map has been enlarged 200%. This map was used by the Pokanoket Watershed Alliance on a Pipe Survey. Note numbers which indicate location of pipes. Note that the scale of the map must be enlarged at 200% also.

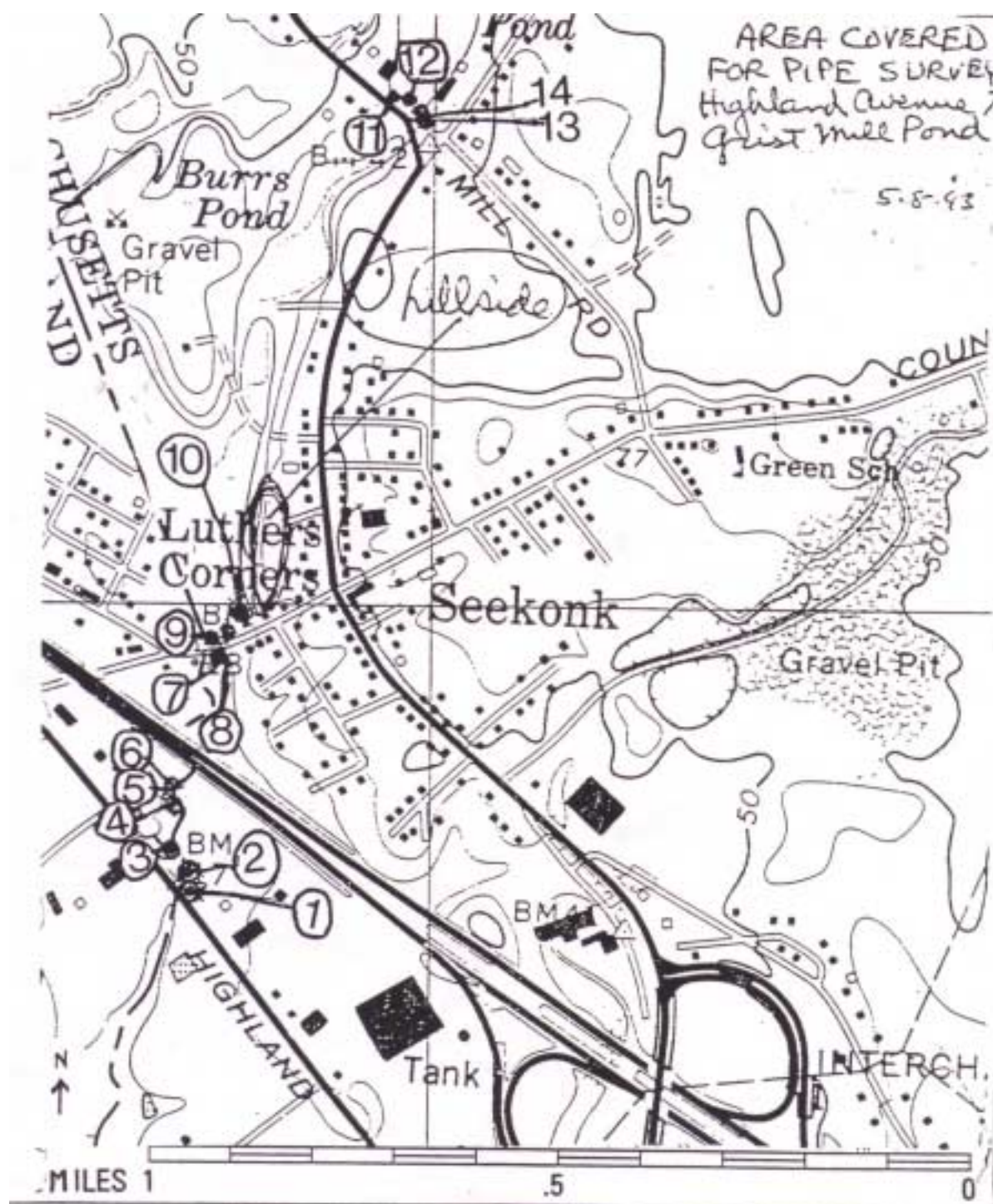


Figure 1B. ASSESSORS' MAP. These maps can be obtained from City or Town Hall. By working with town officials, some groups, such as the Hop Brook Protection Association, have been able to photocopy these maps. Other groups have paid to copy the Assessors' maps. Sample map is part of one used by a Shoreline Surveyor on Section 9 of Hop Brook. Although this map, at a scale of 1" = 200', does not have contour lines, people are able to orient themselves on the river by finding property lines and city streets.

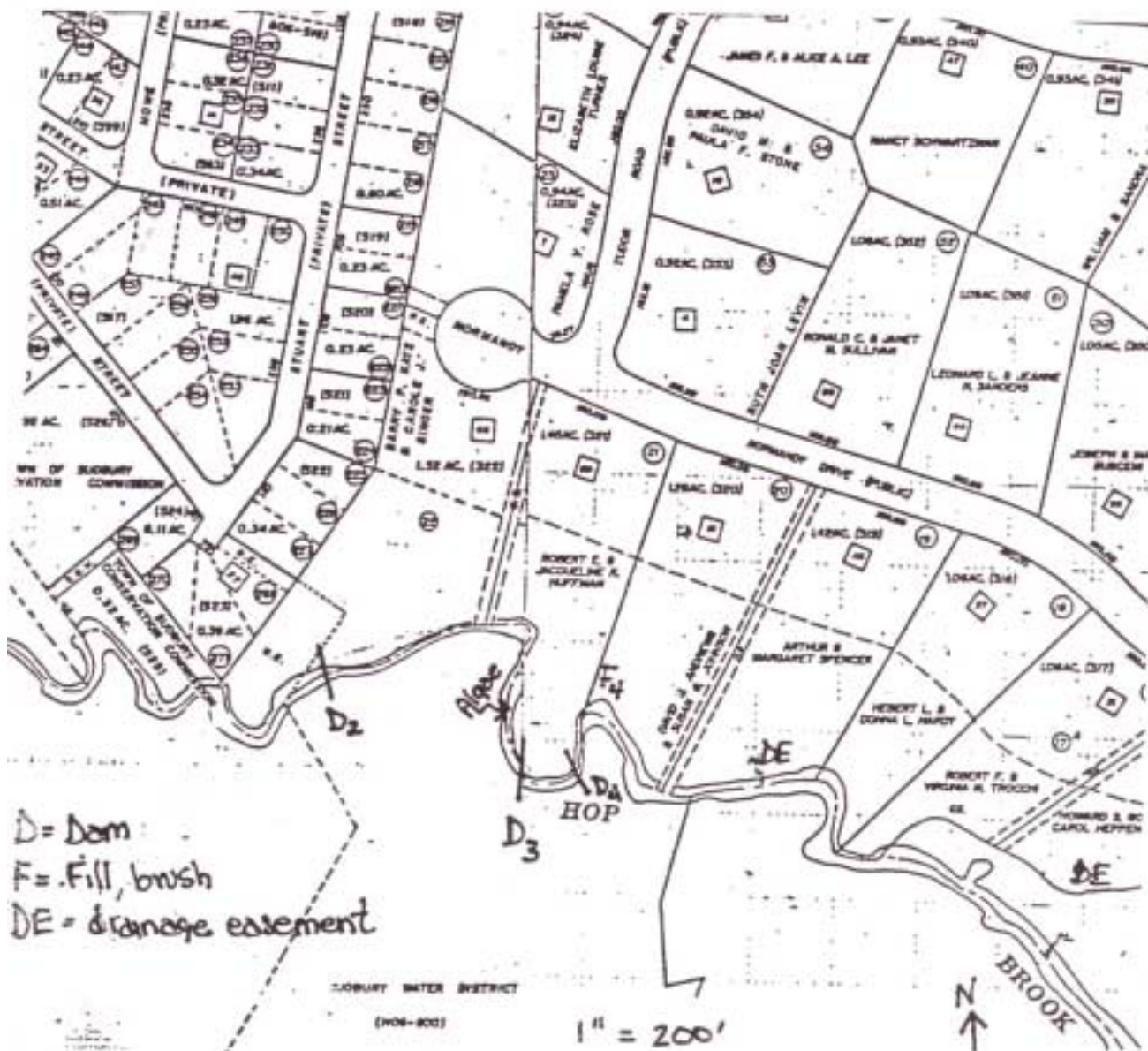


Figure 1C. SKETCH MAP. This sketch map (only a portion is shown here) was created by Vic Campbell for the Neponset River Estuary Survey (1995). It shows excellent detail of this busy urban area.

D. Including Landowners and the Public

It is essential to work with landowners along the river. Involving them in the Shoreline Survey is an excellent way to enlist their support in the work and in the follow up. At the very minimum, you must notify them if you will be crossing private property. Some groups have found that it is possible to do Shoreline Surveys by canoe, others have walked along shorelines, and others have just been able to do the surveying from roads and bridges. Some groups have asked a member who owns land along the river to write other landowners; depending upon the size of the river, members have knocked on doors and left fliers in the mailboxes; others have mailed letters. (For sample letters, see *Figure 2 A,B,C.*)

Groups have found press releases to be a good way to alert residents about Shoreline Surveys. This is a way to involve prospective members and it makes follow up easier. (For a sample newsletter article, see *Figure 4.*)

(Text continues on page 18.)

Figure 2A. SAMPLE LETTER TO RIVER RESIDENT (Westport River Watershed Alliance)

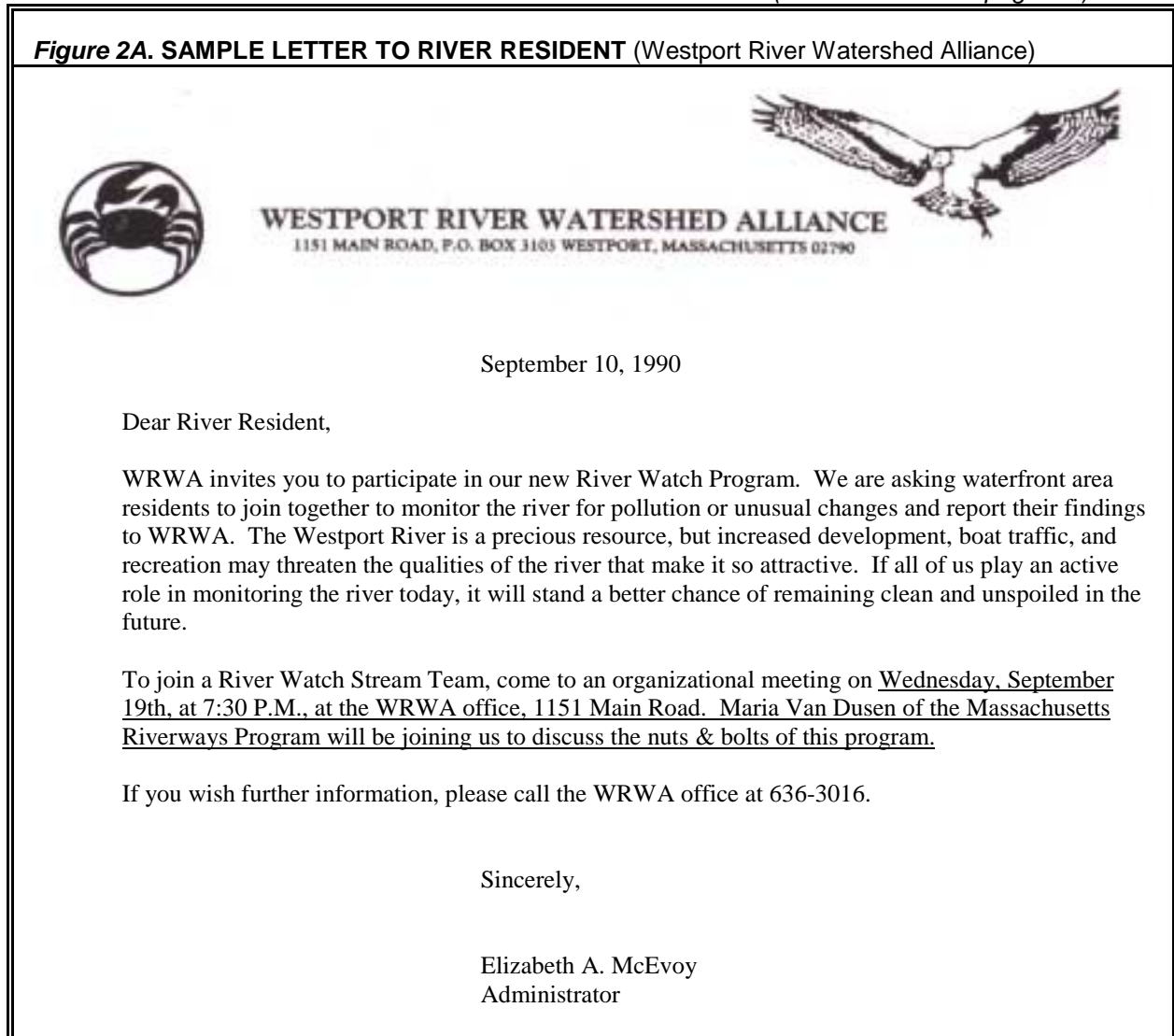


Figure 2B. SAMPLE LETTER TO RIVERFRONT LANDOWNERS (Pokanoket Watershed Association)

January 23, 1992

Dear Neighbor of the Runnins River,

The Runnins River Task Force and Citizens from its three watershed communities, Seekonk, East Providence and Barrington, have joined together in an interstate effort aimed at protecting and restoring the Runnins River. As a landowner along the Runnins, we invite you to join us in our efforts and participate in a visual survey of the river.

Volunteers from the three towns have agreed to monitor and asses the condition of the Runnins River and, as the first step, the volunteers will soon be participating in a visual Shoreline Survey of the river and its tributaries. To accomplish this survey, the volunteers will access the river via road crossings and then either walk or canoe down the river, observing and recording important instream and streamside characteristics. Care will be taken not to traverse any private property, but it may be necessary to walk along the river's banks in certain areas.

If you have any questions or concerns about this Shoreline Survey program, please contact me at 433-2351, or Bob Ballou, the Citizen Monitoring Coordinator for the Rhode Island Department of Environmental Management at 277-6519. If you would like to participate in this visual survey, there are still sections of the river that have not been assigned to volunteers.

Thank you for your time, and we hope to work with you in the future.

Sincerely,

Conservation Commission Chair
Runnins River Task

NEPONSET RIVER WATERSHED ASSOCIATION

The Bradley Reservation, 2468A Washington Street
Canton, Massachusetts 02021 (617) 575-0354

April 28, 1995

Dear Neighbor of Pine Tree Brook,

You may have read in one of the local papers this week that the Neponset River Watershed Association and citizens from Milton have combined efforts to protect and restore Pine Tree Brook. As a landowner along the brook, we invite you to join us in our efforts and participate in a visual survey to determine possible sources of pollution to the brook.

Volunteers from your community have agreed to monitor and assess the conditions of Pine Tree Brook and, as a first step, the volunteers will be participating from May 6 until May 24th in a visual Shoreline Survey of the brook as it flows to the Neponset River. To accomplish this survey, volunteers will access the water via nearby roads and then either walk or canoe down the brook, observing and recording important instream and land use characteristics. Care will be taken not to traverse any private property, but it may be necessary to walk along the river's banks in certain areas to avoid tramping wetland habitat.

If you have any questions or concerns regarding this Shoreline Survey Program, please contact me at 575-0354. To participate in the Shoreline Survey or become part of this effort, please join us at our next meeting **May 24th from 7 to 9 pm in the Milton Public Library.**

Thank you for your time, and we hope to work with you in the future.


Sincerely,

Andrew W. Gregg
Project Coordinator

*Boston, Canton, Dedham, Dover, Foxboro, Medfield, Milton, Norwood, Quincy, Randolph, Sharon, Stoughton,
Walpole, Westwood*

Figure 3. SAMPLE NEWSPAPER ARTICLE. Hop Brook Protection Association

Figure 3. SAMPLE NEWSPAPER ARTICLE. (Hop Brook Protection Association)



Hop Brook Protection Association
P.O. Box 707
Sudbury, MA 01776

October 10, 1994

For: Immediate Release
Contact: Ursula Lyons 000-0000
or Karen and Ron Riggert 000-0000

Shoreline Survey to be conducted
Hop Brook Protection Association looking for help

There will be a training Session on Thursday, November 10 at the Fairbank Senior Center from 7:30 to 9:30 p.m. for anyone interested in helping the Hop Brook Protection Association (HBPA) conduct a Shoreline Survey of the Hop Brook ponds and streams in Sudbury.

Hop Brook is a 9.4-mile system of ponds and streams which flow from the Marlboro Easterly Wastewater Treatment Plant to the Sudbury River. Joan Kimball from the Massachusetts Department of Fisheries, Wildlife and Law Enforcement's Riverways Programs and coordinator for the Adopt-A-Stream Program, will lead the training session. She will present slides and explain how to use data sheets, maps and cameras.

According to Kimball, "Shoreline Surveys have many benefits. We have learned that they increase the awareness of everyone - citizens, businesses and town boards - about the conditions and needs of local rivers. By locating problem pipes, or discovering trash, groups can work within the community to improve rivers and brooks. By identifying habitat and locating potential access areas, people have protected these areas."

Following the training session, participants will work in small teams along segments of the Hop Brook, conducting their surveys whenever possible before the first major snowfall. Neighbors are invited to form their own teams and work within a nearby area.

Frank Lyons, President of the Hop Brook Protection Association which joined the Adopt-A-Stream Program in 1992, said "Although the association's main goal is to stop the point source pollution from the Marlboro Easterly Wastewater Treatment Plant, we also want to prevent any further pollution to Hop Brook from nonpoint sources. The Shoreline Survey will help to determine any nonpoint source problems and to curtail them.

No experience is necessary to participate in this grass roots project. For more information call HBPA members Ron or Karen Riggert at 000-0000.

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Printed on PAGE 14 • THE SUDBURY TOWN CRIER and FENCE VIEWER • October 17, 1994

Figure 4. SAMPLE NEWSLETTER ARTICLE (Westport River Watershed Alliance--WRWA)

The Westport River Watershed Alliance



River News

NEW STREAM TEAMS MONITOR THE RIVER

River-watchers have united to help protect the environment in the Westport River watershed. A meeting at the WRWA office on September 19th resulted in more than two dozen volunteers joining "stream teams" to monitor and report on prospective problems increased steadily. "Last spring we had a call about tires being buried illegally," said Administrator Betsy McEvoy. "We called the police and the Board of Health, who acted promptly and had the violators remove the tires. More recently, someone saw brush being dumped into the river. The Conservation Commission went to the site, took photos, contacted the responsible party, and had the problem corrected." Reports have ranged from propane tanks washing ashore to human waste floating in the river.

The Volunteers will draw maps of their areas, identifying natural as well as man-made structures like ponds, forests, culverts, and docks. Two close inspections a year will produce data on quality of habitats, signs of wildlife, water color, and vegetation. Following each inspection, each stream team will watch for any changes such as clearing land for development, soil erosion, heavy salt use on roads, any form of pollution and litter. The record will also note man-made structures in need of repair or replacement, like culverts and drainage ditches, or hay bales intended to catch soil from cleared land.

All changes seen and reports made will be accompanied by a written report and forwarded to the appropriate authorities. Signs reading "River Watch Area -- KEEP IT CLEAN" will be posted in every team's area or along the shore to promote awareness of our fragile environment.

For more information on the River Watch Program, or to join a Stream Team, please contact the Westport River Watershed Alliance at 508-636-3016, or stop by the office at 1151 Main Road, Westport.

E. Conducting a Training Session

Volunteers planning to do a Shoreline Survey should attend a training session either prior to the survey or in the field on the day of the survey. It is imperative that volunteers know what they are looking for and the reasons for the Survey. If you are a member or prospective member of the Adopt-A-Stream Program, arrange for Adopt-A-Stream Program staff to present their slide show to help people identify problems and learn what to look for. Each pair of volunteers will need a map of their section of the river and data sheets. Discuss how to orient volunteers to the map in the field.

Groups find it effective to have people talk about the river beforehand. If each person says either why they have come to the meeting or what his or her concern is, you will gather important information about the volunteers and you will learn more about the river and the individual segments.

Involving town officials from the beginning is an excellent strategy for river protection. In Sudbury, the Hop Brook Protection Association invited the Conservation Commission and Conservation Officer to help plan for the survey and participate in the training session and follow up meetings. The group received background information and maps from the Commission. In return, the town gained a field inventory, a description of the condition of all the pipes entering the brook, and volunteers and constituents who will work for the town.

Based on your reasons for doing a Shoreline Survey and the conditions of your river or brook, choose which survey to conduct or which to conduct first. The **four** surveys in this manual are (a) the Basic Survey and Summary Sheets, (b) the Pipe Survey, (c) the Bridge Survey and (d) the Wetland Survey.

Figure 5. SAMPLE AGENDA FOR TRAINING SESSION FOR STREAM TEAMS

Introduction

1. Introduce the Shoreline Survey, its purposes and how it will be used in follow up actions.
2. Ask volunteers to say a sentence about what river means to them or concerns they have.

Shoreline Survey Goals

3. Agree on your goals and objectives for doing a Shoreline Survey. Make sure that people understand what will happen: Shoreline Survey, follow up session, action planning session, time frame, action.

Data Sheets

4. Review the Data Sheets: explain the purposes of each.

If you have slides of the river, or can arrange with Adopt-A-Stream staff to bring their slides, you can use them as training. The Adopt-A-Stream slide show follows the format of the questions on the basic data sheets so people feel comfortable using the data sheets. An alternative method, instead of using slides, is to use a spot on the river as a living classroom.

Maps

5. Using your base map, show people the sections which will be surveyed. If you have not created teams for each section, ask for a team of 2-3 volunteers for each section.

Shoreline Survey Field Kits

6. Make sure that each team has a data sheet and map for their section, knows what they will do during the survey, and know what to do with the data sheets after the survey.

Safety

7. Discuss *Stream Team Tips for Shoreline Surveys* with the volunteers. (For ideas, see *Figure 6*.)

Follow-up Meeting

8. Plan a follow up meeting to record observations.

Figure 6: *Tips for Shoreline Surveyors*

Safety and Legalities

- ◆ Always walk with someone.
- ◆ Watch out for irate dogs. Walk cautiously and practice good dog etiquette.
- ◆ Do not drink the river water.
- ◆ Lifejackets are required by law for each person in the canoe.
- ◆ From September 15 to May 15 all canoe or kayak occupants must wear a U.S. Coast Guard Approved Personal Flotation Device.
- ◆ Wear long-sleeved shirts and pants to protect against, ticks, mosquitoes, poison ivy and nettles.
- ◆ Wear insect repellent if necessary.
- ◆ Consider landowner rights. Ask permission to cross private land, posted or not.
- ◆ Do not enter posted areas without permission. Take advantage of any public access points.

Environment:

- ◆ Don't walk on unstable banks; your footsteps could speed erosion.
- ◆ Be aware of wildlife and animal homes, for both of your sakes.

NEVER PUT YOURSELF INTO DANGER TO GATHER SURVEY INFORMATION.

If at anytime you feel uncomfortable about the stream conditions or surroundings, please STOP your Shoreline Survey. You and your safety are much more valuable than any of the objectives of the Shoreline Survey.

Checklist: What to take on your Survey

- ___ A buddy
- ___ Data sheets and map
- ___ Clipboard or other surface for writing
- ___ Two pencils – color is good to mark on maps
- ___ Long-sleeved, snag-free clothing /pants (for bugs and thorns)
- ___ Sunblock
- ___ Sunglasses (polarized to see into the water better)
- ___ Lifejackets & paddles if canoeing
- ___ Camera and film
- ___ Gloves
- ___ Copy of letter sent out to landowners

Optional:

- ___ Rubber boots or waders
- ___ Yardstick or measuring tape (useful for pipes)
- ___ Compass
- ___ Field guides (in ziplock bags)
- ___ Food, for energy!

What you need to do:

Tonight: Coordinate with your segment team. Arrange canoes, meeting place, etc.

This weekend: Conduct the survey! Fill out the data sheets while you're on the river. With your team, fill out the *Summary Sheets*—the segment description and the priority Sheet--after you are finished surveying your segment. Return all *Data* and *Summary Sheets* (one set per team) to:

Return by: _____

This month: Attend action planning meeting, which will be held: _____

Massachusetts Riverways Programs/DFWELE



